

AMERICAN BEE JOURNAL.

EDITED AND PUBLISHED BY SAMUEL WAGNER, WASHINGTON, D. C.

AT TWO DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

VOL. IV.

DECEMBER, 1868.

No. 6.

[From the German.]

Foulbrood.

ITS CAUSE, SOURCE, AND CURE.

Among the various diseases of bees mentioned in the history of bee-culture, so far back as that history can be traced, there is none so dangerous and destructive as the justly dreaded FOUL-BROOD. Entire apiaries have been swept away by this pestilential evil; and many a bee-keeper has been literally ruined thereby and constrained to abandon bee-culture, heavy losses having deprived him of the means of procuring a stock of healthy bees to replenish his hives. Others, less seriously injured, were yet so disappointed and discouraged by the damage sustained, as to contract an utter distaste for a pursuit liable to be thus disastrously affected; and if the matter be regarded solely from their point of view, their case is entitled to commiseration and sympathy, and their determination need not create surprise. The evil befalls its victim suddenly and unexpectedly, oftentimes attacking his stocks like a thief in the night, and spreading rapidly from colony to colony. It is consequently by no means strange that the dismayed bee-keeper is filled with sad forebodings when, on opening one of his hives, he perceives exhaling from it an offensive noisome stench, instead of the pleasant odor of honey. With no personal experience to direct him, and fruitlessly employing the remedies suggested by others, he is forced to look on the progress of the malady in hopeless helplessness; and when the last of his colonies has perished, he abandons in disgust what he had expected would prove to him a lucrative pursuit, or at least an agreeable relaxation from exacting duties. Such is but too frequently the melancholy issue; and this fact is of itself a sufficient reason for an endeavor to devise, from careful observation and a resort to the aids of science, means of infallibly and invariably curing this disease whenever and wherever it occurs. Whether the following dissertation will show that we have been successful in this endeavor, must be submitted to the ultimate judgment of intelligent apiarists; though we shall not, in the meantime, refrain

from saying that we will guarantee success in every case where the proposed remedy is applied, and the requisite operations are properly and punctually performed.

When the observant bee-keeper finds on the bottom-board of any of his hives small dark-brown particles or granules, which if crushed between the fingers become plastic and emit an offensive odor; and when, further, he sees that the caps of the brood cells are sunken and that the cells themselves contain dead and putrefying larvæ, either still soft though decomposing, or already shrunk to a dry, black and fetid mass; or, even when immature, dead, and decomposing larvæ, are torn out of the cells by the workers and found lying on the bottom-board; he may feel assured that he has before him conclusive evidence of the existence of foulbrood in that hive. To the experienced bee-keeper the pestilential smell issuing from the hive, at once proclaims the diseased condition of the colony, and renders closer inspection superfluous. Cases occur, indeed, when from protracted want of forage or prolonged bad weather, the stores of a colony becoming exhausted and there being no immediate prospect of new supplies, the workers tear the brood from the cells in despair, and cast it out. But here the larvæ are still fresh and untainted, showing not the slightest symptom of disease or even of incipient decomposition, and from the hive no offensive smell is diffused. This, though an evil, has still no connection with the malignant malady of which we are treating. There is, besides, a mild and non-contagious form of foulbrood, specially distinguishable from the other by the circumstance that where it exists it affects only the *uncapped* larvæ, which are found dead in the cells. This results merely from exposure to severe cold consequent to a sudden change of weather when the lower portion of the combs are already occupied by brood; and not from any injurious property of the chyme with which they were fed. Nevertheless care is important even here, and it is always prudent to treat the case promptly, when such appearances present themselves, in the manner described further on.

To the external accompaniments of foulbrood pertain indisputably the peculiar gaseous and putrescent miasms with which the atmosphere

of the hive in the interspaces between the combs is charged, converting the hive itself into a reservoir where the germs of the destructive disease are inexhaustively generated and whence they are boundlessly diffused. The atmosphere of a hive containing foulbrood is fatally infected. The ammonia developed therein from the decomposing larvæ, and the sulphuretted hydrogen there generated, act destructively on the vital force of the bees; their store of food—more especially the pollen—is permanently tainted, and thus becomes peculiarly adapted to promote and sustain the continuous generation of miasmatic corpuscles. Of this fact we shall treat more fully further on, our purpose being previously to elucidate the source of the two elementary substances just named.

It is a universally recognised maxim that "wherever organic substances are decomposing—that is, being resolved into their constituent elements—ammonia and sulphuretted hydrogen are produced." That this is the case, too, wherever foulbrood occurs in a hive, can be demonstrated beyond doubt by the following simple experiment. Place fifteen or sixteen larvæ of bees in a small glass phial, and pour in as much water as will cover them to the depth of $1\frac{1}{2}$ inches. Dip a strip of common letter paper in an aqueous solution of sugar of lead, dry it, and suspend it in the phial close above the water by means of a cork. After standing a few days, the following changes will be observed. The suspended paper will have assumed a dark-brown hue, the sulphur developed by the decomposing larvæ having parted from the hydrogen with which it was combined, and united with the lead for which it has greater chemical affinity, thus forming sulphate of lead. The actual presence of sulphuretted hydrogen in the phial can be readily ascertained on opening it, by the disagreeable smell thence issuing, resembling that of rotten eggs. On the other hand, the nitrogen disengaged from the decomposing larvæ, now combines with the liberated hydrogen and forms ammonia, which is held in solution temporarily by the water. Pour a little of this water in a tumbler, warm it gently, drop in a small piece of caustic lime, and the pungent fumes thence arising will indicate the presence of ammonia, liberated and expelled by the lime. Of the other elementary substances contained in the larvæ, and now liberated, we shall take no notice at present.

It is well known that bees breathe not, as most other creatures do, through lungs, but through spiracles, (*stigmata*), two pairs of which are situated on the sides of the thorax, and one pair on each side of the abdominal segments. The larvæ, like all creatures, breathe atmospheric air, which, if life is to be sustained, must be pure and consist of four parts nitrogen and one part oxygen, with a small portion of carbonic acid and watery vapor, mechanically mixed. But if, as we have already shown, the atmosphere of a foulbroody hive contains in addition a quantity of ammonia and sulphuretted hydrogen, the creatures breathing it inhale certain death. That which they inhale must produce its natural effect. Life cannot be supported by such a medium, the inhalation of which

can only produce morbid combinations in the delicate tissues of the larvæ. That the pollen stored in such a hive becomes constantly more and more decomposed, as has already been stated, by the presence of these foreign elements, probably needs no further demonstration.

Having thus indicated the points which we deemed indispensable to a proper elucidation of the subject, we shall now proceed to search for the cause to which solely the existence of foulbrood is to be ascribed.

Every bee-keeper is well acquainted with the nutritive substances on which bees subsist; but it may not be so well understood that these, as well as those of vertebrate animals, consist of two distinct classes, the non-nitrogenous, including honey, and the nitrogenous, including pollen. While the former are composed of three organogens—carbon, hydrogen, and oxygen, with a few inorganic substances, the latter are composed chiefly of carbon, hydrogen, oxygen, nitrogen, and sulphur, (phosphorus). These, in consequence simply of their peculiar composition, decompose with extraordinary ease. They readily ferment and putrefy when brought in contact with heat and moisture; and while thus decomposing, irresistibly affect, in like manner, any non-nitrogenous substances with which they are combined. They are the natural ferments which, in conjunction with heat, generate the process called fermentation, and which are peculiarly qualified to convert saccharine substances to other forms. I shall recur again, hereinafter, in its appropriate place, to this property of nitrogenous substances; deeming a closer examination of pollen, as a nitrogenous and sulphuretted substance, now more immediately in place.

The chyme which the workers prepare from honey and pollen by partial digestion, and with which the larvæ are fed, contains a *nitrogenous, plastic, formative substance from which all the organs and tissues of the larvæ are derived and composed*. It is composed, as has already been remarked, of carbon, hydrogen, oxygen, nitrogen, and sulphur, (phosphorus); and precisely because of this, its complicated composition, it is peculiarly susceptible of rapid decomposition when exposed to air and moisture—that is, to undergo fermentation and putrefaction. By decomposition, the elementary substances it contains are liberated; that is, the chemical combination previously subsisting is dissolved, and they are free to form new combinations, dependant severally on their more or less strong affinities. Thus nitrogen seizes and appropriates as much of the hydrogen as is required to form ammonia, the residue of the hydrogen combining with the sulphur and forming sulphuretted hydrogen; while the carbon unites with the remaining oxygen to form carbonic acid, &c. &c. We perceive from these various processes, that the decomposition which a nitrogenous substance is undergoing, results in the production of a number of new substances, possessing new forms and properties; and that the original effect which, as an organic unit, it was qualified to produce, is no longer attainable after decomposition is accomplished. It is hence obvious that pollen, even though having

undergone only partial decomposition, must affect the bodies of bees and of larvæ differently from what it did or would do in its natural condition; and there is no longer a doubt that it is *from pollen thus partially decomposed that foulbrood originates*. That it can very readily undergo decomposition is manifest. Moisture, emanating in part from the unsealed honey, and in part from the perspiration of the bees, becomes condensed in the hive from external cold; and in the fall and towards spring it is frequently found hanging in drops on the combs, just as we find it condensed on the windows of our dwelling houses. If now one of these drops falls into a cell containing pollen, decomposition of the latter speedily commences, and is then communicated by the bees to the pollen in other cells; and the cause of foulbrood is hence abundantly present in a hive thus circumstanced. This, too, explains the *natural disinclination of bees to store water in their cells*. Their practice is to carry in barely so much water as their immediate wants require, and carefully lick up every drop of condensed moisture as soon as the internal temperature of the hive permits them to do so. The observation of this fact has doubtless induced many bee-keepers to believe in "water-dearth," in hives, and even to write about it; though bees are obviously averse to having water stored in their hives and remove it promptly whenever feasible. They are perfectly aware that moisture produces mouldiness, and that this destroys their pollen and may lead to the introduction of a fatal disease. This, however, only by way of a passing remark. Let us return to the further consideration of the problem in hand.

At first blush the suggestion that decomposing pollen is the cause of foulbrood may seem improbable, inasmuch as the brood has partaken of it from the first moment of its existence; and yet, till it has advanced so far towards maturity as to be closed up in its cell to undergo its final metamorphosis, the larva seems to have been in no degree affected by the deteriorated quality of its food or the lurking malady thereby induced. Nevertheless, the seeming contradiction will disappear on closer investigation, and the blame will again fall on the contaminated pollen. So long as the larva was fed with chyme already digested in the stomach of the bee, the aliment was partially deprived of its noxious properties by the change it underwent in the bee's stomach, having its original nutritious qualities in great measure restored. Consequently the larvæ fed therewith developed in an entirely normal manner, until ready for capping. It is possible, moreover, that the decomposition of the pollen may have been arrested or suspended by the action of the bee's stomach, or at least so acted on thereby that its admixture could not essentially deteriorate the nutritious property of the chyme. Similar changes are easily effected. Thus it has been observed that yeast, a ready generator of fermentation, when triturated with a muller, loses the property of exciting alcoholic fermentation; though it can still, in that state, convert sugar into lactic acid, &c. We conceive that this is no inapt illustration, if the stomach of the bee

be regarded as a triturating apparatus by which the pollen was deprived of the greater portion of its noxious properties. But when the larva receives *undigested* chyme, the progressive decomposition is at once communicated to the tissues of its insect organism, which, incapable of resisting or neutralizing the noxious influence, are at once destroyed, and foulbrood *must necessarily* be the result.

Even when the chyme has been digested, that is, made edible and nourishing, and the larvæ receive it in this form, its fermentative power, as in the case of the triturated yeast, may have been changed, *but not destroyed*. A process of fermentation still takes place, resulting, however, in other products; and an accumulation of these in the delicate tissues of the larvæ, we may readily conceive would naturally and necessarily lead to death and putrefaction. Every substance capable of generating fermentation possesses the peculiar power of being able to communicate it to every fermentable body with which it comes in contact, and superinducing continuous decomposition till putrefaction is completed. The duration of the process is longer or shorter, indeed, according to the quantity of ferment present, or the greater or smaller amount of fermentable matter to be decomposed. When we now reflect how infinitely small is the portion of decomposing pollen matter which is mixed with the chyme in the stomach of the worker, we shall readily conceive that its effects will show themselves only after some lapse of time, corresponding in this case with the natural progress of development in the larva, and reaching its acme only after the larva is sealed up in its cell.

A. LAMBRECHT.

BORNUM.

(Conclusion next month.)

[From the (London) Gardener's Chronicle.]

American Bee Journal.

I have both this month and last, through the kindness of some unknown apiarian friend on the other side of the water, received a copy of the "AMERICAN BEE JOURNAL," for which courtesy I beg to thank him through the medium of the *Gardeners' Chronicle*. There are in the JOURNAL some admirable papers on bee-management, both from original sources and culled from the German *Bienenzeitung*.

The correspondent styling himself "NOVICE" says:—"About rye and oats this spring, Mr. Editor, it would have done you good to have seen them, in case you have never seen a similar sight. We had provided about a *bushel and a half* [the italics are my own] supposing that to be plenty. But as if remembering their last year's education, they opened on it with astonishing vigor, and consumed nearly all of it on the first two or three pleasant days. After the rye and oat meal was all gone, we gave them wheat flour until our better half 'feared that the bees would eat us out of house and home.' They became seemingly almost demented, and

would dive into the flour and burrow into it until it seemed as though they themselves must lose their identity. They would fly towards us and take it out of our hand, as we carried it out to them; and such an incessant jubilant humming as they kept up while about it, made one think they could not be other than the happiest little scamps on the face of the earth. And the huge 'little biscuits,' (as our children term them), which they had deftly padded on either leg, presented an appearance ludicrous in the extreme, as they scampered hurriedly into their hives. After the rain had wet down their precious meal, and it had become baked over the top, they would not give it up, but tunneled and burrowed under it until you imagined they they were not bees, but some liliputian wild animals burrowing in the ground. The Chicago tunnelling was not a comparison! 'But did all this meal really amount to any positive good?' some of our neighbors asked. Of course it did. Our bees have never before been in half so fine a condition."

I have quoted this passage because, in common with many other English bee-keepers, I have never yet been successful in inducing the bees to partake of flour of any description. Some years since, having seen accounts of the benefits which resulted from feeding bees with rye, oat, or other flour, I tried both oat meal and wheat flour, given in various ways; but I never could distinguish that they paid the least attention to it, except that when it was placed near their entrances, they tried to convey it away from the vicinity of their hive. Certainly, so far as I could perceive, not a particle was eaten or carried within their entrance.

How can this apparent discrepancy be accounted for? I confess I cannot understand it.* Two of my immediate friends, who also tried the meal, also pronounce it an utter failure. I do not at all mean to dispute the accuracy of "Novice's" statement, but wish to know why it is that we have failed where he has succeeded.

*In warm localities and southern districts, where early blossoming pollen-yielding trees and plants abound, the bees will not carry in flour of any description. They prefer the natural article to any substitute whatever; and in any situation, forsake the meal pan as soon as they can obtain a supply of pollen from natural sources. In northern latitudes or colder districts, however, where brooding *en masse* commences long before catkins make their appearance on the willows, hazels, and maples, the great demand existing for nitrogenous nutriment makes the workers eager to obtain it, in the interval, from any available source, and they readily accept the proffered substitute. Probably in the milder climate of England, as in the Southern States of the Union, natural supplies may appear contemporaneously with the first production of brood in the hives, and the bees instinctively resort in preference to that table which they find profusely decked by the hand which caters for them as providently as for the sparrow.—Ed. A. B. J.

Some English bee-keepers, at the time of our instituting the experiment, also tried meal and flour feeding, and imagined that their bees derived some benefit from it; but their testimony did not appear to be very positive or conclusive.

Another correspondent writing on "*Bee Management*," says:—"Strong stocks are the sheet anchor in beekeeping; and all worker comb in the breeding apartment of the hive is the very foundation of that sheet anchor. Without it, it is impossible to keep strong stocks." It is very true that strong stocks are the sheet anchor in beekeeping; but is it a good practice to have nothing but worker combs in the stock hive? If there is no drone comb there for the queen to lay in, will not the bees almost certainly construct drone cell comb in the supers, and the queen be induced to ascend for the purpose of filling them with drone eggs, at the time when the bees imagine that drones are required? I usually keep down the quantity of drone combs in my stock boxes; but if, from any cause, I should find in any particular hive all the comb to be worker-celled, I should supply one frame of drone comb in exchange for one of the others.

Further on, the same writer has the following remarks:—"We must never allow the bees to get in advance of the queen; for if we do, the prosperity of the swarm is checked at once; that is, if the bees are allowed to fill the combs with honey in the spring, before the queen has filled them with brood, the swarm will be an unprofitable one. Take a swarm that is nearly destitute of honey and feed it just right, that is so as to promote breeding early in the spring, and not fill the comb with honey, such a swarm will invariably be a prosperous one. On the other hand, allow a swarm that has honey enough for all other purposes to appropriate all the honey from one or two other hives early in the spring, and before they consume it the willows produce honey, then the fruit trees, the white clover, &c. Such a swarm will dwindle down to nothing, because the queen has no place to deposit eggs for brood."

This is all very true, as I have often had reason to know. In some of our seasons, in Devonshire, we have early prolific honey gathering. The cells in the central combs being but sparingly filled with brood, are at once appropriated by the bees for storing honey; the queen lays a very limited quantity of eggs, so that by the time the principal honey harvest of the season sets in, the population of the hive is so small that very little advantage can be taken of it, and the hive proves a very unremunerative one to its owner.

The writer also goes on to say:—"If from any cause the queen does not commence laying eggs as soon as she should in the spring, she should be stimulated either by feeding or by uncapping sealed honey in the hive, for whenever the bees are fed they feed the queen. Thus the rousing up of the bees and compelling them to fill themselves with honey, promotes breeding. Taking bees from another hive and putting them in with a strange queen, causes them to feed her and pay more attention to her, especi-

ally if they are young bees. Bees taken from three or four different swarms, in sufficient numbers to make a good stock, and put in a hive with a queen, will work nearly as well again as the same number taken exclusively from one swarm, with their own queen. Drumming out a swarm and putting it back again in the same hive, sets the bees to feeding the queen. A person who has never tried the experiment of stimulating, and regularly giving the queen all the room she can occupy with brood throughout the season, will be astonished at the amount of bees that can be raised in one swarm from one queen."

This is all very correct. I have often been upbraided by my friends for disturbing my hives, by removing the frames, &c., but I have generally found that such disturbance, so far from operating injuriously as regards the bees' industry, really had the effect of exciting them to increased diligence. I have occasionally been quite astonished at the enormous quantity of eggs which a queen can, under favorable circumstances and with judicious stimulation, be induced to lay, filling an immense expanse of comb.

A correspondent, H. Faul, recommends a method of safely introducing strange queens, which may be useful to many, and particularly those who are desirous of Ligurianizing their apiaries. He says:—"I see by your JOURNAL that bee-keepers still use the wire cage for introducing queens in deprived colonies. I have a better plan." (See BEE JOURNAL, volume 4, number 1, page 16). I have tried this plan of introducing queens, with success, but not invariably so. I am not disposed to give up the precautionary use of the wire queen cage, which I consider a safer and more reliable method, though I am bound to confess that, even with its use the lives of valuable queens are occasionally sacrificed.

Here is an account of what the writer considers to be "the finest bee country in the world"—Tennessee; "White clover is becoming the spontaneous growth of our bottom lands. Besides, we have an abundance of other bee pasturage, which lasts all the time that bees can be out. Forked Deer River Bottom abounds with wild bees. You can not place honey out anywhere in it, without its being in a few minutes covered with bees."

Wild bees being in many districts so very abundant, there is some discussion as to the best method of tracing them to their haunts, and effecting the capture of themselves or their sweets.

America must be a much superior honey country to ours. Mr. R. Wilkin states that he has sold a colony "to a neighbor, which yielded him last season four swarms. The first swarm swarmed twice; and two of the casts swarmed also—making in all seven from one. Two of these went to the woods. The remaining five became strong and rich for winter. The old colony and the swarms yielded, besides, eighty pounds of surplus honey."

The "Köhler process" for insuring the pure fertilization of Italian queens, excites, as may be supposed, considerable interest among bee-

keepers who are so anxious to establish the Italian bees as our American brethren. I have not tried the plan recommended by Mr. Köhler for combining natural and artificial swarming, but have great faith in its efficiency, and hope to have an opportunity of trying it. Also his method of ensuring pure fertilization appears likely to be extremely useful to all apiarians desirous of Ligurianizing their apiaries.

There are many other articles in the AMERICAN BEE JOURNAL worthy of notice, and I hope to resume their consideration.

S. BEVAN FOX.

August 29, 1868.

[For the American Bee Journal.]

The Bee Feeders.

MR. EDITOR:—The object of this communication is to call attention to the subject of bee-feeding in this section of the country.

We find the production of honey here, this year, has been so light that one-half the bees in the country will die during the coming winter, if they are not fed. Many have already died. This has compelled us to use, or invent for use, the best means within our reach for the purpose of feeding them. I mean the vehicles by or through which we can safely feed them without attracting the attention of robbers.

I have used a common tumbler or quinine bottle, with a thin piece of muslin over the mouth of each, held in place by gum elastic bands. I fill the vessel full, put on the muslin and band, turn it bottom upwards over a hole in the honey-board or openings between the frames. If the syrup is of proper consistence, they will soon empty the vessel; if it is too thick, it will granulate into sugar again, and will not pass through the muslin. This, however, makes a pretty good feeder, and is a convenient way to feed bees.

I have also used a better one recently. It is made as follows: Take a pint or quart tin can, air tight, cut a hole in one end large enough so that the screw top for an oil can will cover it sufficiently to admit of soldering the top fast to the can, over the hole; then punch a number of small holes in the cap and screw it on to the top, fast to the can, and your feeder is done. This make the best feeder I have used. I believe that Mr. John M. Price of Buffalo Grove, Iowa, deserves much credit for this feeder.

The screw top to this feeder may be of various sizes; but one that receives an inch cap is generally to be preferred. I have also the same kind of a can as above described, with an opening cut in one end three inches long and one-fourth of an inch wide, with a tube one inch deep soldered into it, and a slide or hoop of the same form, to slip on this tube, to hold in place the thin muslin that closes the end of the tube. This likewise makes a good feeder, to use in those hives that have long narrow openings through the top of the frames. These feeders may compel us to pay particular attention to the density of the syrup used in them. Experience will soon determine this for us.

CHARLESTON, ILLS.

J. DAVIS.

[For the American Bee Journal.]

Prolific and Long-lived Queens.

For the past five years I have been experimenting in regard to the longevity and fertility of queens. In some respects I may differ from all other writers or writings on this subject, that I am acquainted with. But the reader will bear in mind that an old experienced apiarian is not so liable to be mistaken or jump at conclusions, as one with less experience, or a novice in the business.

It is a fact that cannot be disputed that some queens are more prolific than others; and the question arises how can we secure all prolific queens? The first swarm of bees I ever owned I kept for twelve years; and, as I said in a previous article, I never failed of having a prolific queen in said swarm in the whole twelve years. The comb was all worker comb. I had swarms whose comb was nearly all drone comb, and at different times, I exchanged the queens to see whether the fault was in the queen or in the comb. And I invariably found that there was no difference in the fertility of queens of the same age. The queen put in where there is but little brood comb would breed but little, and *vice versa*. But these were all natural queens. Natural queens, or queens raised in a strong swarm, at swarming time, are almost invariably started from the egg, and fed on royal food from the beginning. Such queens are in their prime the second season, and do not show any signs of failure until the third season, or sometimes not until the fourth. They are invariably very prolific, provided they have a chance. On the contrary a queen that is started from the larva or grub, varies in length of life according to the number of days it was fed on worker food. For example, an eight days queen, hatched in May or June, has invariably failed the first season. They are but little if any longer-lived than a common worker. A ten days queen fails the second season. What I mean by this is, a queen hatched in eight or ten days from the time the nucleus is made up, or from the time a full swarm is deprived of its queen. Nearly all writers give ten days as the shortest term; but I have at different times had them come out in eight days, and in one case in particular I examined a nucleus before sunrise on the eighth day, and found the queen out and all the other cells, seven in number, destroyed. This was in May, 1867, and said queen died of old age in August following. (A friend writes me from New York State that he has this season had one come out on the seventh day.) Consequently an eight day queen is or has been fed on worker food five days, that is allowing sixteen days for a natural queen, from the time the egg is laid; and I have had a considerable number of queens that did not come out of their cell until the seventeenth day after the swarm was deprived of its queen. In the case of my neighbor Mr. Harding's bees, after making four swarms from one, and taking out the last queen cell, as he supposed, and leaving one queen, his wife informed me, on the morning of the eighteenth day from the time the old queen was

taken away, that the queens were still piping in the old swarm. (The weather had been extremely fine and pleasant). To satisfy myself, I went and examined the hive, and found one queen in the cell, having been retained there by the workers. I opened the cell, took the queen, and introduced her to a queenless colony belonging to another neighbor. She proves to be an extra prolific queen. Most writers say that all queen cells hang perpendicular, or nearly so, when completed, or the queen hangs head downward. I have had as many as five in one hive in horizontal cells. The only difference was, the cell was a trifle enlarged at the outer end, and capped over similarly to a drone cell, only somewhat more elongated or rounded at the point. I know by experience, that such cells are frequently found; but queens raised in them are not worth keeping, except for experiment. Now the question arises, how is the novice to raise prolific and long-lived queens? Answer: either by waiting until natural cells at swarming time are built and sealed, and then transferring them to nuclei; or by taking out a swarm with the old queen, as I recommended in a former article, headed "How to make natural swarms artificially." By taking out a swarm in that way, and leaving the old swarm on its old stand, the bees do not appear to be in such a hurry to raise queens, as when deprived of their queen and placed on a strange stand. Old swarms or nuclei deprived of their queens at unnatural seasons, are more apt to raise eight or ten days' queens, than they are when deprived at the natural season for raising queens. Queens raised in a strong nucleus, or a strong swarm, when forage is abundant, I am inclined to think are better than those raised in small nuclei, weak swarms, or when forage is scarce, on the same principle that a full fed calf makes a better cow than a half-starved one. I picked up an old paper this summer, with an article in it from Bidwell Brothers, of St. Paul, Minnesota. I saw from it that they have arrived at nearly the same conclusions that I have, in regard to forced or unnatural queens. And in their circular, they advertise and warrant their queens to be all prolific, &c. There are scarcely any queens sent out by queen raisers, that prove to be good for anything the second season, for this reason, they are nearly all forced or unnatural. On the 26th of June, I received three queens from W. W. Cary. They all commenced breeding about alike, and for the first three weeks I could discover no difference between them in their fertility. But after three weeks one began to fail, and by the 10th of August, she died with feebleness and old age. Another commenced failing soon after, but she is still alive, October 17. One out of the three still holds out in her fertility. As I said, in a former article, their purity proves satisfactory. Now, I do not wish to be understood as finding fault with Mr. C., or any other queen-raiser, for sending out such queens; but merely desire to call their attention to the subject. The practical queen-raiser will readily see that there is some reason why a queen raised from the egg, and fed on royal food from the start, should be longer-lived and more pro-

life than one fed partly on worker and partly on royal food.

I have not been able to discover any difference between a natural queen or a forced or artificial one, provided they were both started from the egg, raised in a strong nucleus, at or about the swarming season, or when forage was abundant. The queen-raiser can easily see that there are other methods than those I have recommended, to secure cells started from the egg. I do not wish to be understood to say that all queens raised from the egg are equally fertile, or that one will live just as long, to a minute, as the other; but that they will average up to the standard.

Purchasers of queens, here in the west especially, have been badly humbugged by such queen-breeders as Flanders, Kidder, Mack, and a host of others, who have sent out one-striped queens as pure. In ninety-nine cases out of one hundred, the purchaser did not know what a genuine article was; and unscrupulous dealers have taken advantage of this ignorance to get rid of their impure stock. Mr. Baldrige circulated the report, through the BEE JOURNAL, that Professor Flanders was dead. Well, in his western circulars, he now signs himself W. A. Flanders, A. M. The interpretation of A. M. I suppose means After Money. The BEE JOURNAL has probably killed the Professor, or he has taken an overdose of his bee-charm. Mr. Kidder is now probably dead, as Mr. Langstroth, or his agent, obtained a judgment against him for infringement. For particulars, see Reports of Cases in United States Circuit Court, Northern District of New York, Roswell C. Otis (Langstroth's agent) vs. Charles Austin (Kidder's agent). Decision rendered at Utica, March 21, 1866.

ELISHA GALLUP.

OSAGE, IOWA.

[For the American Bee Journal.]

Hybrid Bees.—Bee Stings.

It seems highly improbable that among a multitude of droves from a large number of hives standing near, a queen should be impregnated by a drone from a distant swarm or apiary. The fact, however, that this frequently occurs, seems to be well established. In hiving a swarm of bees on the 17th of June last, I discovered them to be Italian hybrids, about one bee in six or eight having two or three yellow bands—the third band, in those having three, being narrow, and somewhat indistinct. My bees were all natives, and, previous to this spring, I was not aware that there were any Italian bees within six or seven miles of mine, except wild swarms in the woods. Last spring, a neighbor, nearly three-fourths of a mile distant, procured a colony of Italians. A year ago, a swarm of Italian hybrids were found in the woods, two miles from my apiary. This season, two others have been found, one of them nearly or quite pure Italian, at a distance of four and five miles in another direction. As the only swarm of Italian bees known to be in my immediate neighbor-

hood was three-quarters of a mile distant, my queen must have mated with a drone from this swarm—in which case it must have been a young queen, reared to take the place of one lost or disabled in the old hive; or with a drone from a wild swarm in the woods, which is much more probable, as there was no appearance indicating the loss of the queen, two swarms being cast early in the season, in the regular way.

There is no reasonable doubt that the foreign blood was introduced by a drone from a colony of wild bees, partly Italian. This shows that impure Italians may be reared, where there are no domesticated native bees within several miles, as there are always wild bees in wooded townships. There are two other instances in this county where the native or black bees have hybridised with Italians, and in neither case were there any Italian bees kept in the neighborhood.

Speaking of remedies for the stings of bees, Langstroth says: "It may be some comfort to novices to know that the poison will produce less and less effect upon the system. Old beekeepers, like Mithridates, appear almost to thrive upon poison itself. When I first became interested in bees, a sting was quite a formidable thing, the pain being often very intense, and the wound swelling so as often to obstruct my sight. At present, the pain is usually slight, and, if the sting is quickly extracted, no unpleasant consequences ensue, even if no remedies are used." It is well known that the system may become accustomed to some poisons taken into the stomach, so as not to be immediately affected by quantities that would be sufficient, in other cases, to produce a fatal result; and there seems to be some reason to expect a similar effect from the poisonous stings of insects. But being repeatedly poisoned with stings, in my own case, and some others that I have known, seems to have increased the effect of the poison. If Langstroth's theory had any application to myself, I have been stung enough in former years to make the effect of a sting almost a pleasure; but, on the contrary, while the effect used to be slight, it is now more severe, sometimes producing eruptions all over the body, and frequently headache, and sickness at the stomach. Does one become accustomed to the poison of mosquito bites, so as to make them agreeable? The Rev. Mr. Kleine advises beginners in bee-keeping to allow themselves to be stung frequently, assuring them that, in two seasons, their systems will become accustomed to the poison. A safer way for beginners, and all others, is to handle the bees properly, and avoid testing, in their own persons, the theory of being hardened against the effect of stings. M. O. HOWE.

FAYETTEVILLE, Vt., Sept., 1868.

In *Echoes from Cornwall* is a "Legend of the Hive," commencing—

Behold those winged images!
Bound for their evening bowers;
They are nation of the bees,
Born from the breath of flowers;
Strange people are they; a mystic race
In life, and food, and dwelling-place!

[For the American Bee Journal.]

Experience in Italianizing, &c.

BY ANOTHER NOVICE.—No. 4.

WINTERING BEES.

MR. EDITOR:—I had intended this for the September or October number of the BEE JOURNAL; but being very busy during the summer, and seeing several pieces on the same subject in the JOURNAL, I have kept it till rather late. My attention was recalled to it the other day, when reading the article on wintering bees in the open air, or on their summer stands, by Mr. J. T. Langstroth, page 72, of the October JOURNAL. I do not like the trouble of putting bees in cellars, or burying or housing bees in this latitude. I think it wholly unnecessary. I will just give my experience the two past winters, and leave the readers of the JOURNAL to judge for themselves, which is the least troublesome and least expensive way.

In the fall of 1866, I had nine stands, four in frame hives and four in common box hives. The four frame stands, in two of which Italian queens had been recently introduced, with one of the box hives, were too weak in stores for winter. These I fed with brown sugar syrup, *knowing no better then*; and to make sure of the two Italians, I mixed half honey with their syrup.

I took off the honey-board and spread a piece of warm carpet over the tops of the frames; then stuffed the caps with dry straw or shavings, and put them on. I merely opened the holes of the box hives and put on wire cloth, then put the caps on stuffed as above. One of the Italians being weaker than the other, and being unwilling to lose it, I took a bundle of rye straw, flattened it to four inches thick and a little wider than the top of the hives, thus making a flat mat, and sewed a piece of tow linen around it. I laid this immediately on the frames, and spread a piece of oil cloth over, to keep off the rain; placed a board on top, weighted with a stone, to keep the wind from blowing all off—the caps being also left off. *Don't smile at this, reader, but wait and see the result.* This stand wintered so well that I wintered it again with the same mat last winter, and also three others prepared in the same manner.

In January I examined the five weak stands, to see if all was right. Found the two Italians in good condition, dry and warm; but the other three were dying of dysentery. Two of these had about five pounds of honey remaining but could not get access to it. I carried them into a warm room, and tried to save them by uniting the three together and feeding them; but this being in a cold spell of weather, they all died in a few days. I rather attributed this to the brown sugar I had fed them on exclusively, as each hive still had sealed honey; though they were only half filled with comb.

On the first of February, I examined the two hives of Italians, and found them all right, dry and warm, with plenty of honey. On the 15th

I examined them again, with the same result. I re-examined them on the 8th of March, they still had plenty of honey, with some brood.

The six stands wintered well, and from them I increased my stock to eighteen the next season—all of which I wintered successfully, in the same manner; only setting the weak ones in larger boxes, and filling the space between with shavings, sawdust, straw, &c.; and covering the tops well, to keep out dampness. I also drove down stakes, and fastened boards around all sides, except the front; and stuffed the space between with straw.

All my hives face the south-east, and the entrances are left open all winter, only being contracted to half an inch in cold spells. I am confident that some of my weak stands had not over ten pounds of honey last fall, and I had no idea of wintering them; but concluded to try as an experiment, and the result was a complete success, for I only had to feed the two weakest in April, when the supply of honey was exhausted by the brood. I think this mode fully as good as, and much less troublesome and expensive, than Mr. Langstroth's. The mats can be made by any person in a few hours, and will last for years if kept in a dry place in summer. I would here say that my apiary is so situated as to break the force of the wind, and receive the warmth of the sun most of the day.

I began last spring with the above eighteen stands, but as the season was so bad, I only allowed five first swarms. I never knew or expect again to see such a season as this was. I am now reduced to eighteen stands, and will select fifteen of them for wintering, all of which I am feeding on coffee sugar syrup.

A.

LOWELL, Ky.

[For the American Bee Journal.]

What's the Difference?

MR. EDITOR:—Will Mr. Francis be kind enough to inform us how much more his bees are disposed to steal honey, where the cells have been *unavoidably* broken by an *inexperienced* hand, than where the same chance occurs by the use of a *thin-bladed knife* in the hands of an expert?

I have tried both ways, and cannot see but that my bees are as well pleased with the one as the other. In fact they do not seem to be very choice about the *way*—they seem to be more interested about the *honey*; but perhaps it is because I have neglected their moral culture. This seems to be the only point between us, as he admits that his bees are naughty enough to fill their frames so full that there is difficulty sometimes, and this is all that I claimed. I do not think Mr. F. has demolished a single

* * *

It is an error to say that queens and drones will not feed themselves. I have often seen queens eating honey out of open cells; and have noticed drones doing so hundreds of times.

—BERLEPSCH.

[For the American Bee Journal.]

Wintering Bees, and other Matters.

It is settled beyond a doubt in my own mind, by the experience of others as related in the BEE JOURNAL, and by my own experience for several years in the apiary, that bees to winter well, must have sufficient ventilation to carry off the excessive moisture which accumulates in well stocked hives. This moisture arises partly from the exhalations from the bodies of the bees, but mostly, I think, from the surrounding atmosphere, which constantly holds in suspense a greater or less amount of moisture, according as its temperature is higher or lower. The warm atmosphere of the hive is capable of holding a considerable quantity, until it is condensed by coming in contact with the cold walls of the hive, at some distance from the cluster of bees. There it condenses, first into minute drops of moisture, and afterwards, if the cold increases, into frost. The constant accumulation of the quantity, by repeated thawing and freezing in a hive that has no efficient means of ventilation, gradually encroaches on the space occupied by the bees, finally reaching those on the outside of the cluster. These grow benumbed, cease to eat, lose their vitality, grow cold, the frost forms on their bodies, and they die where they stand. The frost continues to penetrate the cluster, if the cold weather is prolonged, until finally the last bee dies covered with frost. The warm days of spring then melt this frost, and on examination, the whole mass of bees are found dead and as wet as if just dipped from a basin of water. I found one hive in that condition last spring. The entrance to this hive was left open, but the honey-board was left on tight, without any upward ventilation, as an experiment. All my other colonies wintered well on their summer stands, having their entrances open three or four inches wide, and the front and rear openings in the honey-boards (half an inch wide, and extending the whole length of the hive) uncovered, but the middle opening closed.

For the coming winter I have adopted Mr. Langstroth's plan with some modifications. I shall omit the outside covering of the hive, believing that it is better to have the hive of a single thickness of board, say seven-eighths of an inch, in order that the heat of the sun may easily penetrate it, and warm up the hive almost daily, thus giving the bees an opportunity to bring to the central part of the hive fresh supplies of food from the outer combs. This plan may lead to a somewhat greater consumption of honey; but if a swarm of bees will give its owner from fifty to one hundred pounds of surplus honey in a season, as mine have done the past summer, he ought to be entirely willing to have them eat all they need during the winter. At all events, one of two things must be done, to winter bees successfully, in addition to their having a supply of food and thorough ventilation—they must either be kept in a repository where frost cannot enter, as a cellar, trench, ice-house, or the like; or they must be put where the sun can warm them up occasionally.

I have removed all the honey-boards, placed two one-half or three-quarter inch strips across the frames, and covered the whole top of the frames with any old woolen garments that could be found about the house. These need no cutting or fitting. Pack them in as you would pack a trunk, (the roof or cover of my top box is movable, and I like it much better than the old plan of having it nailed on), two, three, or half a dozen thicknesses will make no difference. The moisture will pass through as readily as the insensible perspiration of our bodies will pass through our best clothing. The hives will remain dry and the bees warm. I have no fear of losing a single swarm the coming winter, although several new ones which I bought are quite weak, owing to the sudden close of the honey harvest a month earlier than last year, in consequence of the drouth.

I like the plan of using small surplus honey boxes, such as are described in the BEE JOURNAL for May or June. The bees worked in them readily, three new swarms filling, with the nicest honey I ever saw, sixteen of them each, (the boxes weighing three pounds and from three to four ounces a piece), even with our short honey harvest. Two of the colonies were double swarms of black bees; and one, a single swarm of hybrids, from a black queen.

I am satisfied that hybrids are far better workers than black bees, and believe it would pay any bee-keeper to have at least one Italian queen in his apiary, just to furnish Italian drones to cross with the young black queens, even if he made no further use of her. I recently visited the apiary of Mr. William J. Moore, of Danville, Kentucky, consisting of sixty or more colonies. He introduced an Italian queen to one of his colonies five years ago, has never bought any since, has never raised any artificially, has increased his colonies only by natural swarming, and yet nearly every one now shows marks of the Italian bee, notwithstanding his Italian queen died the second season, and he got no pure queen from her.

A word about my best hybrid queen. It may seem absurd to some to speak of the excellence of a hybrid queen. Mr. Langstroth pinches their heads off; but I like them. Mine is a grand-daughter of a beautiful hybrid, and is a most prolific mother. She first attracted my attention last summer by coming off with a prodigious swarm as late as July 26. She could not fly. As the bees began to return to the parent hive before I could hive them, clustering in the portico and over-running the whole front of the hive, I removed the parent hive to a new location and put a new hive in its place, with a comb of brood inserted. Then, with a wing and a dust pan, I removed most of the bees from the portico to the new hive, thus forcing a new swarm. Fortunately the queen was with the bees thus removed, though I did not see her at the time. In six days they had built eight new frames of comb, which were filled with brood and eggs. On my return from three weeks' absence, the hive was full—thirteen frames—with combs, honey, and an immense amount of brood. This season, after filling sixteen six-pound boxes, this hive threw a large

swarm; but the queen not following them, they returned as they did last year, and I treated them as before, making a new swarm with the wing and dust pan. But this time I did not get the queen, as I learned from the queen cells started on the brood comb given to them. On returning after an absence of about four weeks, I found a large cluster of bees adhering to the under side of the mother colony. A closer examination revealed comb and, to my great surprise, brood, and plenty of it. Here, then, was my prolific hybrid queen doing an outside business on her own account, having left a youthful queen and a prime colony inside to take her place. I thought of Novice's "Giant-ess," and concluded I had got her equal. But what to do? was the question. She could not live there all winter with her swarm, and she *must* be saved. She had evidently attempted to follow a second swarm, had fallen to the ground, crawled up one of the legs of the hive, and established her headquarters underneath its bottom, where her faithful followers found her and took up their abode. Seven combs were built, the longest nine inches, and reaching to the ground about six inches, all *crammed* with brood mostly capped. These combs I cut away from the hive very carefully, one at a time, brushed off the bees into a new hive set on the site of the old one, fastened the combs into frames with strips of paper cut from flour bags, as recommended so highly by some writer in the BEE JOURNAL, and congratulated myself on having created a fine new swarm from almost nothing. This was all done in the morning. I felt it necessary to take one look at them towards night, to see what a nice thing I had done; when, to my utter surprise, I found all the combs laying in one mingled mass of confusion on the bottom of the hive. The bees had in that short period gnawed away the paper strips, and hence the downfall of the combs. There was a double handful of the prettiest paper pulp you ever saw, on the bottom of the hive and among the combs. Had the queen been killed by the downfall? Luckily, no! I found and caged her, removed the comb, cleaned out the pulp, remembered seeing at a neighbor's some slats made for Venetian blinds—wouldn't they be just the thing to hold the combs in the frames? Tried them; nothing could be finer; took them out in three days—combs all fastened to the frames; put in on each side, one nice frame of solid honey from the parent hive. They are now in good order for wintering, and the most prolific queen I ever saw is saved. I shall breed from her next season, although a hybrid of the fourth generation. She is also one of the prettiest queens I ever saw—a uniform dark-yellow or mahogany color, the whole length of the abdomen. Who has a pure Italian colony, or any other, that has made, this season, one hundred pounds of box honey and cast two good swarms?

R. BICKFORD.

SENECA FALLS, N. Y., Oct. 1868.

The darker the hive, the more contented the bees.

[For the American Bee Journal.]

Queens Mating Twice, and Color of Italian Bees.

MR. EDITOR:—My article in the last JOURNAL has stirred up a hornet's nest, and been the means of putting me in communication with many of your readers.

Many of them take exception to my idea that queens do not *mate* with two drones, and I wish to set them right as to my meaning, as some of them misunderstand me. When I used the term "*mate*," I meant *copulation* which resulted in *impregnation*, and not copulation simply, for I can imagine that a queen might meet a drone and bring home *signs of impregnation*, without impregnation having actually taken place; which being the case, instinct would send her forth again, in order that she might be *fertilized*. This explanation of my letter, and of my position on this subject, I am ready to defend against all comers.

In an article in your JOURNAL, I see that some people have an idea that the honey crop has a direct tendency to make light or dark shades. This I do not believe, and can show facts which will do away with the idea. I have two sister queens, one dark and the other light, whose progeny is just the reverse—the dark queen bringing out invariably light bees, and the light queen dark; and this at all seasons, whether apple, clover, or buckwheat was the material from which the honey was gathered. A friend of mine, Mr. W. O. Sweet of West Mansfield, who is largely interested in queen-raising, and who has taken great pains to secure the purest stock, has been engaged in testing this matter of color the last season, by a plan similar to the Köhler, has succeeded in getting both queens and drones of almost any required shade. I have seen, at his apiary, drones on whose abdomen there was scarcely a trace of black—a very light orange marking it as perfectly as the rings on the worker. I am aware, of course, that imported queens generally are quite dark, and that their daughters grow lighter through successive generations; but the working progeny of imported queens is invariably in accordance with the mother color, which would not be the case were it affected by the honey crop.

As this color question is one which may have a direct bearing on the matter of purity, I should like to hear from some one who is posted on the color variations of the "Italian bee" at home.

J. E. POND, JR.

FOXBORO', MASS., Sept. 12, 1868.

Among the "FARM ITEMS" of the *New York Tribune* lately, is the following:—

"In Australia the bees are as large as horse-flies, and do not sting."

That is, they are about as big as a piece of chalk, and are native, natural non-combatants and non-resistants, who, unable to appeal to the fierce arbitrament of arms, allow themselves to be despoiled of their property and turned out of house and home, without even going to law.

[For the American Bee Journal.]

Bee Management.

Mr. John M. Price wants me to give my method of managing bees for surplus honey.

In the first place we will suppose that each swarm has its combs all worker combs; has been well wintered; and is in the right kind of hive to suit the climate. It should also have honey enough for all purposes, or it will have to be fed. See that every queen is in good condition for breeding early in the spring; and every queen that does not come up to the mark should be superseded by a young one as early as practicable in the spring, for it is useless to expect benefit from a swarm that has an unproductive queen. Some swarms may have too much honey for profit; but this can be remedied by exchanging combs with such as have not enough. All swarms that have not a prolific queen can be doubled, if the season is not too cold and backward; but your swarming must be done early in all seasons, or not done at all, if surplus honey is expected. Do not attempt any increase of stock until the hive is filled with brood. As soon as the weather becomes warm enough, commence moving your empty combs, one at a time, into the centre of the cluster of bees, between two combs well filled with brood. This will induce the queen to breed faster than she otherwise would, on the same principle that raising a partly filled honey box and inserting an empty one under it, causes the bees to build comb faster than they otherwise would. I am aware that this is one of my *assertions*. But try it, and see if you do not gain considerable time by doing so. In all swarms where the hive is completely filled with bees when the spring opens, resort to this method is of course not necessary. If from any cause other than an unproductive queen, you happen to have a weak swarm, it can be built up within itself by this method.

Here, in this section of country, there is no surplus honey gathered until the bass-wood blooms. Last year the bees commenced on it on the 20th of July. This year they commenced on the 8th of July. All hives should be filled, or nearly filled, with comb and brood by the time your honey harvest commences. Then give them abundance of surplus room and free access to the boxes; also plenty of room below for the queen to deposit her eggs; and there will be but little danger of swarming. Heretofore there has been considerable trouble to keep bees from storing too much honey below; but this trouble can now be obviated by means of the honey-emptying machine. I have taken out a full frame and inserted an empty one. Where there is a young queen, if the frame is inserted in the centre of the cluster and when nearly filled with comb, exchanged with an old queen, I could obtain all worker comb; but if an empty frame be given to an old queen when the bees are gathering honey rapidly, they will usually build too much drone comb.

There will be but little trouble about swarming, with any stocks except those from which you have not taken an artificial swarm. There

are exceptions, however. This season I had a young stock cast a large swarm while they were filling their hive, before it was full; and what was more peculiar about it, they had made no preparation for swarming. Not a queen cell of any description had been started, neither did they commence any till the second day after casting the swarm. When I hived the young swarm, I gave them a frame containing brood and honey, and on examining them four days after, I found they were raising queens; so that the old queen was lost in some way.

In localities where the main dependance is on white clover, it would be advisable only to double the number of those stocks that have a good queen; but here I can make two good young stocks from each old one, by having a fertile queen for each swarm early, and yet have all three in as good condition for storing surplus honey as they would be if I had only made one. New beginners are very apt to want to commence making swarms before the old hive is filled with brood; but that is bad policy. Heretofore we have had to have our surplus stored in boxes, and must either have a large surplus room for storing honey, or have the hive so arranged that when a box was partly filled we could raise it and insert another under, otherwise the bees would be idle during a large part of their time. But with the honey-emptying machine, we shall probably have to adopt Novice's plan, or be left far in the rear. The Langstroth hive, either in the form I use it, or in the shallow form, is well adapted for that purpose—that is for a two-story hive. There can be no question in the mind of any practical apiarian on this point, for we know from actual experience, that, if bees can be supplied with empty comb, they will at times store almost incredible quantities of honey.

Decide as early in the season as possible (and this decision must be governed somewhat by the kind of spring), the amount of increase of stocks you wish to make, and start the requisite number of queens, so as to have them all fertile and breeding early. The next operation is to commence equalising, by either taking young bees only a few days old from strong stocks and giving them to the nuclei, or taking sealed brood from the strong and giving it to the weak.

By this method you can have all equal, and ready for storing surplus when the honey harvest commences. By taking young bees from a stock that has an old queen, you leave all the comb in the hive, and there will be no opportunity given to the bees to build drone comb instead of worker comb. You can take comb from a strong stock that has a *young* queen, and by inserting an empty frame in the centre, you will have worker comb built almost invariably. I have never failed, by commencing early in the season. The great tendency of all stocks is then to build worker comb, (especially if the queen is prolific), so as to secure an increase of workers. But later in the season the tendency is to build store or drone comb, for storing supplies. So you will please take notice, and govern yourself accordingly. Now this article suggests another; and that is, how to raise all prolific queens. But don't be in a hurry; my bee-

keeping was not all learned in one day, neither can I give the whole theory of bee-keeping in one article. Wait with patience, and we will endeavor to have the Temple completed by and by. You will remember that I do not recommend a small box for nuclei, but a hive with a small frame, and a division board, for practical purposes. The person who is raising queens for market will want small boxes.

E. GALLUP.

OSAGE, IOWA.

[For the American Bee Journal.]

Ill Flavored Honey.

MR. EDITOR:—My bees did nothing all the season, till late in the fall when the sunflowers were in full bloom. Then they commenced storing honey in great quantities. They gathered from fifty to eighty pounds, per stand, in two weeks. Some of them filled all their surplus honey boxes, and when I took some of the honey for eating, I found it tasted as the sunflowers smell. It is scarcely fit for table use. There are hundreds of acres of those flowers growing here.

Now what I want to get at, is for some bee-keeper to let me know through the BEE JOURNAL, whether bees will work in a prosperous season on flowers yielding distasteful honey?

H. FAUL.

COUNCIL BLUFFS, IOWA.

☞ We presume that the sunflower here referred to is one of the numerous varieties of wild aster—probably the *A. sericeus* or the *A. sagittifolius*; though we do not know that either of these blooms so late in the season. We have no knowledge of the honey-producing qualities of these, nor of any except the New England aster; but suppose that bees will gather from the blossoms of the variety complained of every fall, if honey is secreted by them.

In the construction of their cells, the bees, by a peculiar instinct, have always used the mathematically correct angles, which give the greatest strength to support pressure, with the greatest economy of materials; and this insect construction, mathematicians and engineers have followed as the proper angle at which dock-gates should be placed, so that the timber employed would yield the most favorable result. The bee's cell is in fact, an elongated dodecahedron; and consequently the angles of the trihedral roof and base can be no other than those of the true geometrical solid; the obtuse angle, on the face of which, produced by the union of two cubes, is the prime angle which affords the greatest resistance to water-pressure in the dock-gate.

The subterranean habitations of the humble-bee are of a much ruder architecture than those of the hive bee. The cells are made of a coarse kind of wax, but placed very confusedly, not exhibiting the geometrical precision observable in the latter.

[For the American Bee Journal.]

Queens by Mail, and Illustrations.

Mr. J. H. Townley, of Tompkins, Jackson county, Michigan, sent me an Italian queen by mail, which, although delayed four days in the mail, was safely received and successfully introduced to a colony of black bees. (By the way, I think Mr. Townley has the pure Italians, as I have seen some very fine bees raised from queens purchased from him, this season; I also believe him to be a very reliable dealer). The box in which the queen was mailed was a neat little pine one, about two inches cubic measure inside, with a piece of honey secured to one side by means of a small wooden skewer; wire cloth over the bottom, and a half-inch hole in the top, also covered with wire cloth. I see by the stamps on the box that he paid letter postage, being twenty-one cents. Now, I think bees should go through the mail the same as seeds. Please ascertain and let us know.

I should like to have Mr. Quinby tell us which kind of a box he likes best for mailing queens, as he says he has tried several. I wish also he would describe his *new non-patented* hive. As I see he has no notion of impoverishing himself by getting his hive patented, perhaps he can spend a little time in describing it for the benefit of the readers of the JOURNAL.

I agree with Mr. J. Davis, in "pitching in for the pictures and explanations" of all the hives in use. All will agree that the illustrations of the improvements in implements of agriculture seen in all the agricultural papers of the country are an interesting feature in those papers; and I can see no reason why the illustration of a good hive, or any tool used in scientific bee-culture, should not be interesting in a journal devoted exclusively to apian science. I believe that, in describing anything in the JOURNAL, the dimensions should be given as well as the shape. In the September number, Mr. S. B. Replogle, in describing his hive, and in his circular also, which I have, gives no dimensions. Suppose a person should make one too small, and lose a swarm of bees in consequence, would he not condemn the hive with all its points?

JOHN T. ROSE.

PETERSBURG, MICH.

Aubrey, in his *Natural History of Wiltshire*, describes Hampshire as having the name of producing the best honey in England, and also the worst. "The forest honey is the finest; but the south of Wiltshire having much the like tuff, must afford as good, or little inferioure to it. Mr. Butler, of Basingstoke, who wrote a booke of bees, and had a daughter he called his honey-girl; to whom, when she was born, he gave certain stocks of bees, which produced 400*l.*, as her marriage portion." Mr. Harvey, of Newcastle, got 800*l.* per annum by bees. Aubrey mentions an improved hive by Mr. Hooke, and other ingenious contrivances of his time.

The Egyptians, when they celebrated the feast of Mercury, ate honey and figs.

[For the American Bee Journal.]

Novice's Ideas on Wintering.

MR. EDITOR:—We are going to put all our bees into the cellar. Does any one care to know why?

Well, you remember the one weak swarm (or rather quart of bees) that we kept in the cellar last winter, which consumed less than one frame of honey, and of which so many were lost, after being set out a day or two? Though they did become very weak, yet, without any assistance in the spring, except the rye and oat meal, they became a strong colony, and have yielded us more than fifty pounds of honey. Now had they been left out with the others, they would assuredly have died, as did three or four much stronger ones, and we should have had nothing but empty combs. (By the way, Mr. Editor, we will pay twenty-five cents each for frames of empty worker comb; so that a Langstroth hive from which the bees have died, is worth \$2.50, for combs alone). Now, if we can save ten pounds of honey from each stock, by carrying them in the cellar, (which we do not doubt), we shall have three hundred and fifty pounds more ready for our honey machine next spring. We shall place a thermometer there, so as to keep the temperature as near 35° or 40° as we can.

A great deal is said about *keeping bees quiet*, yet the weak swarm first mentioned was struck every day for three months, with hardly an omission, to see if they were alive; and we are going to "look at" and "punch" our bees this winter whenever we feel inclined to do so.

We cannot help thinking Mr. Langstroth's new plan for wintering is an "awful sight of trouble," and that it will not answer the same purpose as keeping them in a cellar at a temperature of about 40°. Will not the same objection come in that was made to double hives, that the sun cannot warm them through as quick as a thin hive?

We have reduced our forty stocks into thirty-five. The fall pasturage was poor; and we hope to have thirty-five stocks *sure* next spring.

Do you not think, Mr. Editor, that our large yield of honey, this poor season, was mainly owing to the large amount of *rye* and *oat* meal fed last spring? That it saved their honey in some way or other, we cannot doubt. We think you should advise, at the proper season, *in large letters*, the use of RYE AND OAT MEAL; but then how few would take the trouble to provide it?

We hope every bee-keeper will carefully read Mr. Gallup's article, on page 93, of the November number of the BEE JOURNAL. It seems as if it was written purposely for our locality.

Many have called on us to get our "secret" for "luck" in bees; and those that did not know more than we could tell them, were sure to get everything wrong, in spite of books and BEE JOURNALS, given or lent to them. We do not mean to say *all*; but, alas, too many, for we have a *third class* here, though they are only too much like "*angel's teeth and hen's visits*,"

few and far between. We have little fear that the business will be "run into the ground," by too many engaging in it; for there are few that will take the necessary care and trouble to "*do the right thing at the right time*," even if they are convinced of the large profit to be realized on time and money invested.

When equalizing our stocks a few days ago, we found, as we did every season before, our Langstroth hives far heavier than the Americans; yet they have furnished more than twice the quantity of honey this season, and we must confess that we cannot see clearly why either. With the practice we have had we do not find the least trouble in removing frames.

Bushels of rye and oat meal, and rows of jars for honey, miles in length, in anticipation of the season of 1869, are already floating before the vision of
NOVICE.

[For the American Bee Journal.]

Hives, and Wintering Bees.

MR. EDITOR:—I am often asked by beekeepers, as I meet them and by letter, what kind of hive I use, which kind I like best, how I winter my bees, and what I think of Langstroth's mode of wintering, &c., &c.; and as your paper is the means of communication to all who care to know anything about these matters, I reply by saying that I use Kidder's Compound Hive. Do I like it? Of course I do, or I should change it for a better one. But I do not say this is the best for all to use, though I do think that a hive nearly square inside is the best for cold climates like Wisconsin. And I say to all, *use movable frames or no hive*.

I gave my method of wintering bees in the JOURNAL some time since, and will now say that I have tried most of the plans recommended, and think any temporary arrangement too expensive, with too much time, too much litter with clamps, loose boards, &c. I say, make a *sustable permanent house*. It need not be expensive, and will last for years. I set my bees into their winter quarters as soon as severe cold sets in; remove the caps entirely, and put on the straw mats, which are made of soft oat straw, and so constructed that they fit tightly on the top of the hive, with a space of three quarters of an inch between the straw and the frames. This allows a free passage for the bees to all the combs, and a warm place for them to cluster.

Perhaps ashes, woolen rags, or something of this kind may answer; but nothing is so cheap and clean to handle as the mat made in a frame with strips of lath. Mr. Gallup has pointed out the three classes of beekeepers to perfection, and I have come to the conclusion that it is time spent in vain to try to educate class No. 1, and class No. 2 is not much better. Yet, with all my care, I cannot make bees gather honey where there is none; and bees in this vicinity have barely gathered enough to winter on, and my own table will go unsupplied this winter. I have many things to write, but time and space forbid now.
B. S. HOXIE.

COOKSVILLE, Wis., Nov. 10, 1868.

[For the American Bee Journal.]

A Surrejoinder.

MR. EDITOR:—I see, in the November number of the BEE JOURNAL, that Mr. E. Gallup is out with a "General Rejoinder." As to his explanations to others I have nothing to say, but his notice of my article is some more of his "buncom." What right has he to put words in my mouth? How does he know what I would say to his explanation, if he had made one? Well, I suppose he knew it about as well as he knew that the Langstroth hive was "rejected all over the West"—or rather "the shallow things," as he is pleased to call them. Well, he may call them what he pleases, but I simply say that it is not so. The Langstroth hive is not rejected all over the West, as asserted by Mr. G. My visit this fall through the West satisfied me that Mr. Gallup's assertion is not correct, and I can conceive of no good reason he could have had for making it, except to prejudice the public mind against the hive. This fall I attended a public sale of bees in western Illinois, where there was a large quantity of bees sold in different kinds of hives. Three or four hundred persons were present, and those bees in the Langstroth hives sold from five to eight dollars per hive higher than those in any other kind of hive, and all that I heard say anything at all about hives gave the Langstroth hive the preference. Thinks I, this does not look much like these hives being "rejected all over the West."

Some wood be wise beekeepers in our country know that Mr. Langstroth has got up one amongst, if not the very best hive now extant, and has written the best work on the culture of the honey-bee extant, and they imagine it makes them look smart to find fault with and slander his hive. Do not understand me to say that his hive is perfect, or that no one has a right to reject it and use some other if he pleases. But I do object to these wholesale aspersions on other people's credit. In all my acquaintance in the West, I do not know of a single person that has ever used the Langstroth hive and then rejected it. No doubt there are many such cases, but they are not "all over the West," as Mr. Gallup would have us believe. Hoping that Mr. G. will point out the defects of the Langstroth hive, and condemn it on its merits, whatever they be, and not assume to speak for "all the West," I am, as ever,

B. PUCKETT.

WINCHESTER, IND., Nov. 14, 1868.

The Beekeeper,

"— intent from out their straw-roofed hives,
Watches his little foragers go forth,
Boot on the buds to make, to suck the depths
Of honey-throated blooms, and home return,
Their thighs half smothered with the yellow
dust."

A young swarm builds worker comb exclusively at first. Weak swarms, second swarms, and artificial colonies having young queens, rarely build drone comb the first year.

[For the American Bee Journal.]

Rectangular Frame Hive.

MR. EDITOR:—I am much pleased with the JOURNAL, and take a deep interest in the various subjects therein discussed, as well as in Gallup's *awful muss*; and, as there seems to be a free exchange of thought through its pages, I write you a few lines to answer the request of friend Davis, of Charleston, Ill., and Dr. S. N. Vickary, of Darien, as well as to set friend J. M. Price, of Iowa, all right in regard to that *non-patented hive* he tells us about in the November number.

First, I would tell friend Price that I consider the hive he describes as one of the best out, and I have had some opportunity of judging, as I have used and bought rights in Davis' Platform hive, Langstroth's Movable Frame hive, the American hive, the Quinby hive, Flanders' Triangular and Hoop-frames hive, and also his Book hive, and they all had a lack of convenience in one respect or another, which made them objectionable. I finally lit on the rectangular frame, as Mr. Price has illustrated, and which I will more fully explain when I get my stereotypes, for which I have sent. Suffice to say that I obtained a patent dated October 20, 1868, No. 83,257, which you will find noted in the *Scientific American* of November 4th. Friend Price and I have come to the same conclusion in regard to its value, and I suppose he was entirely ignorant of my hive and claims. I had sent a photograph of it to my brother, W. A. Conklin, of Oskaloosa, Iowa, some time last July or August. I also told Mr. Wagner of it, and referred him to the Patent Office several months ago, as he will remember.

I will give a full description of it, together with specifications and claims, as soon as I get the stereotypes or electrotypes from the foundry.

In conclusion, I would say that I have Langstroth's valuable work on bees, which I consider the best; also Quinby's, King's, Flanders, Adair's, Mitchell's, and the fourth volume of the BEE JOURNAL. I now send you herewith four dollars for the second and third volumes of the JOURNAL, which please send me by return mail. I would not do without the JOURNAL for twice its present price.

DR. A. V. CONKLIN.

BENNINGTON, OHIO, Nov. 5, 1868.

[For the American Bee Journal.]

How Much Honey to Winter a Swarm of Bees?

MR. EDITOR:—The question is often asked, how much honey will winter a swarm of bees? The following, taken from my memorandum, will assist the inexperienced, showing not only the amount used from December 1st to about the middle of April, but also the difference between the winter months, when they are going but little, and later when breeding is going on rapidly.

My bees are wintered in a room about ten feet square in the second story of a large building. The room is double-boarded, with a space

of four inches between, filled with tan. Ventilators are so arranged as to be controlled from the outside, without entering the room.

Nov. 27, 1861, bees were weighed and housed for the winter. March 9, 1862, they were carried out and placed on their summer stands. March 12, weighed again. Average loss, per swarm, in 105 days, 10 1-10 lbs.; greatest loss, 15 lbs.; least loss, 6 lbs.; average daily loss, per swarm, 1 1-2 oz. April 12, weighed again. Average loss, per swarm, in 31 days, 4 lbs. 13 oz.; average daily consumption, per swarm, 2 1-2 oz.

Dec. 2, 1863, weighed and carried in bees. March 5, carried them out. Weighed again March 11. Average loss, 10 lbs. 3 oz. in 99 days; greatest loss, 16 lbs.; least loss, 8 lbs.; average daily loss, about 1 3-4 oz. Weighed again April 9. Average loss in 29 days, 4 lbs.; average daily loss, about 2 1-4 oz. Previous to the last weighing they were fed freely with rye meal, and carried in perhaps one pound per swarm, which would make the loss 5 lbs. instead of 4 lbs.

In this locality bees do not usually carry in even pollen until about the middle of April. Nothing is added to their weight except what is given them. The amount consumed during the winter months is mostly honey, as not much breeding takes place, but after being carried out early in March, they begin to breed rapidly; and of course draw largely upon bee-bread.

About the 20th of February, 1867, I weighed three swarms, which had been housed from early in December. They had become only about three pounds lighter, each. They were young swarms, and rather below medium.

C. RODGERS.

WEST NEWBURY, MASS., Nov. 7, 1868.

[For the American Bee Journal.]

Italian Bees. No. 3.

Stock to be bred from should be not only three yellow banded; but the bands should be wide, with little or no margin of black on the first band; the other two bands should be very narrow, or half of the body yellow. The drones should be one-half or more yellow, not as dark as those imported from Germany. Queens should be entirely yellow, or at most only one-half brown, *not black*. All queens should be discarded that produce black queens, even when the queen and her worker progeny look to be pure—no matter if they are imported, as such stock will not take favor with the majority of American or German bee-keepers. Well bred queens should produce no black queens; and no queen should be used that has not more than one-half her body yellow, and the rest of the body brown or bronze. Queens and drones vary in color, (Langstroth and others). Now if that is so, use the ones of the right shade to breed from. Make the necessary crosses by breeding out and out; and, if necessary, in and in breeding may be resorted to on special occasions.

J. M. MARVIN.

ST. CHARLES, ILL.

[For the American Bee Journal.]

Packing Bee Hives.

For five years I have used hives essentially like the Langstroth standard hive in form, but made of three thicknesses of boards, so separated as to form two independent dead air spaces on each of the four sides and one at the bottom.

The top part, or spare honey chamber, is composed of a cover like the Langstroth cap, fitting loosely over a rim of the same form, but sufficiently small to allow the outside cap to pass over it.

This arrangement, while it does not take much more lumber than the Langstroth hive when made to accommodate two sets of frames, admits of the cover being raised to admit two sets of boxes or frames; while by removing the lid entirely, the top of the hive may be packed to the depth of the main rim with chaff, shavings, old coats, carpets, or other poor conductors of heat, for the protection of the bees, with very little trouble or expense.

I have tried various things, with or without the honey-board, and have not been able to discover any difference, except in expense and convenience. I now use fine shavings, or chaff, without removing the honey-board, as it costs neither money nor labor worth mentioning.

Mr. Langstroth says, "every particle of dampness escapes through the carpets, &c.," and that above six thicknesses he has placed a board, and the upper side would be coated with frost or drops of moisture and the carpets dry. Is it possible that dampness could pass through six thicknesses of carpet and a board, and yet the carpets remain dry? No one would suppose the honey boards on my hive would allow dampness to pass through, when there are no holes in them at all, and they are covered seven inches deep with shavings packed snugly upon them. Yet in very cold weather the top of the shavings is often damp and frosted, while there is no dampness or frost on either side of the honey-board. In fact, they are so far from being damp as to shrink materially after the packing is put on.

When I made the hive above described, it was in obedience to the fact that cold surfaces, when brought in contact with warm air, at once become covered with dampness or frost. To avoid the cold surfaces was to prevent dampness in bee-hives, as effectually in winter as in summer. The facts have fully sustained the correctness of the premises and their application in my triangular hive; and the improved Langstroth hive has sustained the correctness of the reasoning which led to their production.

I have wintered on their summer stands from thirty to eighty stocks of bees in Gowanda, (N. Y.,) for five years. I have used no other hives than the one described and the triangular hive. I have opened them after the coldest nights and shown the combs and bees to my bee-keeping friends many times; and while I have never found frost except at the entrance, I have never been able to find dampness on the combs or honey-boards, even after days of extremest cold.

weather. The bees cluster up against the honey board as if it were a warm brick.

I consider the double rim, with or without triple walls or packed sides, the greatest improvement ever applied to flat hives, and superior to the plan of Mr. Langstroth, in so much that it is cheaper and warmer when packed several inches deep with chaff or shavings, than it would be possible to make a large apiary as Mr. L. directs.

Allow me here to say to those who have written to me without enclosing a postage stamp, that I am a watchmaker, and have no time to write letters which do not at least pay their own postage. It is true my inventions were patented, to prevent others from getting patents on them. But as I can make more money at my business and keeping bees, than by selling patents, I do not propose to go into the business as a business. Yet I will gladly answer any business letters in a business way.

F. F. BINGHAM.

ALLEGAN, MICH.

[For the American Bee Journal.]

Dividing Stocks—Straight Combs.

I have just been reading Mr. Baldridge's article on page 90 of the November number of the BEE JOURNAL, in which he explains his "one exception" to not having to look up the queen in artificial swarming, as when one has not more than one hive of bees on his premises.

The following plan, communicated to me by Mr. Wedge, of Fon-du-lac, (Wis.,) subject only to that same "one exception," I think a good one:

One hive is taken from its stand, and an empty one placed on it; then each comb is taken from the hive removed, and the bees shaken off in front of the empty hive. Then one of the cards of brood is placed in this hive, which now contains the bees, and the artificial swarm is made and contains the queen, which insures the building of worker in place of drone comb.

Next, into the hive removed, now containing only combs and brood, an empty frame is put to fill up the vacancy arising from taking the said card of brood out; and a second swarm is removed from its stand and this hive placed in its stead. This hive, having no queen, the bees secured to it from the swarm now removed, will proceed to raise one for itself—during which time the only empty frame in it will be liable to be filled with honey or drone comb.

As to devices for securing uniformly straight comb, Mr. A. H. Hart, of Stockbridge, in this State, has one, included in the making of the frames, which I think accomplishes it fully. But, as Mr. Hart will probably describe it for the benefit of the readers of the BEE JOURNAL, I shall not do so at present.

L. C. FAIRBANKS.

APPLETON, WIS.

In Hampshire, England, there is said to be a superstition prevalent that bees are idle, or unproductive and unfortunate in their work, whenever there are wars.

[For the American Bee Journal.]

Wintering Bees.

In November, 1867, I put one hundred and three stocks of bees in the basement of my double walled, brick, sweet potato house; the walls of which were sixteen inches thick, with a four inch dead-air space between; and the floor filled up one foot with dry sand, to prevent moisture arising from the earth.

Some of the stocks were in box hives, and others in movable combs. The larger proportion were well filled with honey; but some eight or ten that came off late in August, (some swarms having issued as late as the 25th), were only half supplied. All these were inverted, and flat pieces of sugar candy laid on the combs, to save the honey for spring consumption, when first set out of the house—that being the most dangerous time to feed, from the interference of robbers.

I removed them from the house about the middle of March—all being in very fine condition; and after they were done flying, the hives were free from specks of feces, showing the bees to be perfectly healthy.

On the 15th of May they commenced sending out natural swarms. (They were Italians, of course). But as the season turned out to be a very poor one, I got only about fifty new swarms; as I feared to divide them, under the circumstances.

I make my frames only seven inches high, in the clear; intending to winter in my house.

In addition to the one hundred and three stocks, I wintered some queens in nucleus hives, with frames only four inches deep.

I did not lose a swarm after setting them out March.

During the winter the mercury did not fall below 40° F. in my room, when it was 10° below zero out of doors.

I do not admit a ray of light in the room, except when I go in with a lantern.

I gave no water to facilitate brooding. Brood was very scarce when the stocks were taken out.

I shall put one hundred and thirty stocks in the same room this winter; and will probably give the results in the JOURNAL next season.

CAMARGO, ILLS.

A. SALISBURY.

[For the American Bee Journal.]

Renewing Queens.

In thirty cases of changing old queens for queen cells, none were lost. It may be that the success was in the management. Or it may have been owing to their being Italians. If the latter, it is another good point in their favor.

The bees were smoked with rotten wood, and then fed with honey highly scented with peppermint. The old queens were at once crushed and thrown back into the hive with the bees; and the queen cell inserted at the same time—the nearer ready to hatch the better.

In some cases the young queens hatched so soon that the bees did not start any queen cells of their own. In two instances the queens hatched in my hand, and were allowed to run in the hives on top of the frames.

ST. CHARLES, ILLS.

J. S. MARVIN.

THE AMERICAN BEE JOURNAL.

WASHINGTON, DECEMBER, 1868.

THE AMERICAN BEE JOURNAL is now published monthly, in the City of Washington, (D. C.), at \$2 per annum in advance. All communications should be addressed to the Editor, at that place.

Queens and Workers.

Our correspondent, Mr. Gallup, errs in assuming that the queen larvæ are fed in their earliest stages, with food differing in composition or quality from that which worker larvæ receive. This was formerly believed to be the case; but it is now ascertained that, as regards quality of nutriment, all fare alike until near the period of capping. Up to the sixth day after emerging from the egg all the larvæ, whether workers or drones, or those designed for queens, receive precisely the same kind and quality of food, namely, *chyme*, as prepared by partial digestion in the stomach of the nursing workers. To the queen larva, however, this is administered in larger quantity—so plentifully, indeed, and apparently so greatly in excess of its immediate needs, that the nascent insect literally swims in it, or on it. But when the time for capping approaches a change is made in the food, and the worker and drone larvæ are thenceforward fed with a mixture of undigested honey and pollen, while the queen larva continues to receive the accustomed chyme exclusively, still administered with unstinted copiousness.

The longevity and fertility of queens do not, therefore, result so much from the peculiar or superior quality of the nutriment consumed by them in the early stage of their existence, as from its greater abundance and continuous use, and from the enlarged size of the cell in which they are reared, whereby a more full and perfect development of the insect is made attainable and fostered from the instant of its exclusion from the egg. In these respects queens reared naturally by the workers possess, in almost all cases, advantages only partially enjoyed by those artificially bred, and hence become qualified to be more productive and longer lived.

Mr. T. W. Woodbury, of Mount Radford, England, (the "Devonshire Bee-keeper"), has obligingly favored us with a translation, prepared by him, of Dr. Preuss' essay on *Foul-brood*, which recently appeared in the *Bienenzeitung*. We shall present it to our readers immediately after the article on the same subject, from the pen of Mr. Lambrecht, is concluded.

On inquiry, we find that we were under a wrong impression as regards the Kidder hive. In the case referred to in our last number, we learn that the court rendered no decision. Had this information reached us in time, we should have made the necessary correction in Mr. Gallup's article on page 107 of the present number.

A chemical correspondent of a late German bee journal suggests the use of freshly prepared solution of hydrate of lime (lime water) as a specific, to remove pain and prevent swelling when stung by bees. According to him, the poison of the bees is an acid in all respects similar to formic acid, and like it instantly neutralized by lime-water. We cannot test this prescription ourselves, as, with us, the sting of a bee causes slight pain and no swelling—albeit this was by no means so in by-gone years.

A bee-keepers' association has recently been formed at Montreal, in Canada, for the encouragement of bee-culture in that vicinity. The following named gentlemen are its officers: Gerhard Lomer, Esq., of Montreal, President; Dr. Webber, of Richmond, and Thomas Valiquet, Esq., of St. Hilaire, Vice Presidents; John Lowe, Esq., of Montreal, Treasurer; S. J. Lyman, Esq., of Montreal, Secretary; and J. J. Higgins, of Cote St. Paul, Mr. Goodhue, of Danville, and Mr. Piper, of St. Gabriel Locks, Committee.

We have in hand still a large number of communications from valued correspondents, for which we could not make room this month. Though some of them might be in season now, they will not spoil by being held over, and shall have early attention.

We expect to begin the coming year with increased aid from contributors; and hope to complete arrangements to have in each number at least one illustration, expressly designed and engraved for the JOURNAL.

The Egyptian Bee.

In relation to these bees, we extract the following from a letter recently received from Mr. Woodbury, of Mount Radford, England, known to our readers as the "Devonshire Bee-keeper."

"Referring to your note appended to my communication, which appeared on page 18, vol. 4, I wish to say that the letters of Messrs. West, Lowe, and S. Bevan Fox, confirming my statement as to the ferocity of the Egyptian bee, appeared in *"The Journal of Horticulture"* immediately after the conclusion of the series of articles from my pen, which were copied by you.

"When writing to the Rev. Mr. De Rometin, at Baden Baden, I told him that I found the Egyptian bees 'the most ferocious little wretches it is possible to imagine.' His reply was that they 'bear everywhere the character which you give them;' and a correspondent at Capetown, Africa, assures me that it is there quite as ferocious as I found it in England."

We have no personal experience of the temper of these bees; but it seems doctors will differ in opinion even on so fine a point as the sting of a bee. In a letter from an American friend, speaking of the ill success of some of his importations of Egyptians, he says:—

"One stock remains, with the original queen. I have good reason from the uniformity of her progeny, queen and worker, to believe her pure. I do not find them as vindictive as they have been described by Mr. Woodbury."

We hope he may be successful in wintering them, and that the question may be satisfactorily settled next summer.

A correspondent desires to know, through the JOURNAL, whether Sorghum or Imphee is good for bees. Can any of our readers give him the desired information?

[For the American Bee Journal]

Scarcity of Honey, and a Queer Queen.

MR. EDITOR:—I have thirty stocks of bees, which lack nearly the whole of having stores for winter. Would you feed sugar, (no honey to be had here), and if so, the best quality, or the cheaper? If I feed the best it will cost me about one hundred dollars to put them in condition; or would you let them "slide out" and take stock in *tanning*? For myself I would prefer not to take stock in that trade. I do not doubt it will *pay some*; but I hope it not quite so sure as you recommend. With your consent, I will continue the bee-keeping business to the best of my ability.

This has been with me the poorest season I ever knew of, or heard of, for bees. Hives that contained from twenty to fifty pounds of honey last spring when set out, do not now contain so many ounces. And why is it? I am asked


nearly every day, why it is that bees have made no honey this season. Why, my neighbor says my bees are going back on me; they have not done a thing this season. I tell him there was no honey to gather, and that is reason enough for not doing anything. But, says he, there was as much white clover, basswood, buckwheat, &c., this year as last, and my bees never did better than then; why is it they do not prosper this season? Just exactly the question I would like to ask the man that knows why. This season has neither been dry nor wet, but to all appearances (except the result) a good healthy one for bees. As this is something over which we have no control, perhaps we should not trouble ourselves about it; nevertheless, I am anxious to know what the matter is.

I have raised any amount of Italian bees this season, but as my stocks were not in condition to multiply and divide, but in a good subtracting condition, I amused myself by destroying my hybrid queens, and introducing others of the same stripe; for if there is anything I find difficult about the business, it is getting a queen mated to suit me. I have had queens make two successful trips each, to meet the drones, and they failed to suit me. I had a queen from Mr. Langstroth last season, which I should judge had made half a dozen such excursions, as she produced pure marked workers during the balance of last season; this spring, well-marked hybrids; during the summer, *all* black bees; and *now* she is the mother of well-marked Italians again. I know her to be the same individual, by a clipped wing. How do the doctors explain such conduct, unless it is that she met two drones?

I had a queen this summer make two excursions. She was absent eleven minutes; returned and remained about five minutes, when she came out of the hive, left again, and was absent thirty-one minutes. She returned with unmistakable evidence of having met a drone on each occasion.

E. H. MILLER.

TONICA, ILLS., Oct. 9, 1868.

 By all means feed your bees, to keep them from "sliding out." The hundred dollars so spent will be a better investment than if put in hides. It is bee-keeping and not tanning that we recommend, as a repudiation of our remarks will show. German aparians tell us they never have more than one very poor honey year in fifteen, and as the past season appears to have been an unpropitious one, in Europe as well as in this country, we have probably seen the worst of the matter for a pretty long cycle. Therefore keep up your spirits, and keep your bees alive. Would you advise a grazier to let his oxen starve the coming winter, because pasturage during the past summer was short, and they did not grow fat on it? It is true he might thereupon go into the tanning business with their skins as so much "stock in trade" to begin with; but you could do nothing with your "out-slided" colonies, unless perchance strangury should become epidemic throughout the land, and the doctors, following the prescription

of the ancient leeches, should resort to *bee tea* as a specific, and bid apothecary prices for dead workers—two peradventures not likely to happen.

You not only have our full and cordial "consent" to continue the bee-keeping business, but we should much regret to find so close and careful an observer abandon it. Your observations on queen bees are not those of a man who "seeing, sees not." They corroborate similar observations made, both in this country and in Europe, within the last eighteen months, which will probably serve in the end to remove from the category of mysteries certain puzzling phenomena which physiologists have not yet been able to explain satisfactorily even to themselves.—ED. A. B. J.

[For the American Bee Journal.]

Honey Dew.

On the 31st of May, 1868, there was a heavy honey dew in this vicinity, so that the bees carried in large quantities of it until two o'clock in the afternoon. That night there was quite a heavy shower. On the morning of the 11th of June there was another very heavy dew. Bees commenced gathering at break of day, and gathered all day long and next morning till ten o'clock, when we had a shower of rain which washed it all away. This honey dew was on the leaves of oak, poplar, elm, basswood, hickory, walnut, grape vines, hazel, grass, weeds, and leaves of all kinds.

I called the attention of quite a number of neighbors to the fact, because Mr. Quinby says there is no such thing, or that it must be the exudation of some insect. Now, I never saw a honey dew before so early in the season. I have repeatedly seen it in the month of August in Canada, and once in Wisconsin in the same month, but then only on the leaves of some particular trees.

In the two cases observed, the weather had been quite warm, and we farmers sometimes call it quite *muggy*—that is, a peculiar atmosphere, for some ten or twelve days previous. If this was the exudation of any insects they must have been on the wing, for the very top leaves of the trees were covered with it, as well as the grass where there were no trees. I could discover none on the open prairie on the 31st of May. After two o'clock it dried up so much that the bees ceased gathering, but yet it could be plainly seen.

OSAGE, IOWA.

E. GALLUP.

☞ We have never seen honey dew earlier in the year than about the beginning of July, and then only on the leaves of chestnut trees. It overspread the leaves evenly, and was glossy and clammy, like a thin coat of varnish. The bees continued at work as late as nine o'clock in the morning. The weather was clear and pleasant—temperature at about 85° F. We never saw aphides, or other insects, on the upper or under surface of any of the leaves we examined.

[For the American Bee Journal.]

Common Failures.

MR. EDITOR:—On page 132, Vol. 3 of the BEE JOURNAL, O. C. W., quotes the conversation of some person with himself, pertaining to the failures in bee-keeping, as follows:—"My father before me kept bees, and I have kept them ever since; and we know how to keep them by this time, you see. But now the patent hives, cold winters, millers, mould, and robbers, have ruined my bees. So you see how difficult it is to keep bees in our days."

O. C. W. says—"Now there is no fiction about this. It is a fair representation of the sentiments of a majority of bee-keepers in the country, very many of whom, though good citizens and intelligent men in other respects, are totally ignorant of first principles—a knowledge of which is indispensable to profitable bee-keeping. What we want then is to introduce the BEE JOURNAL into every bee-keeper's family. This would create an interest in the subject; and then, with the aid of movable frame hives, the business can be reduced to a system, and made profitable, instead of depending on *luck*, as many bee-keepers imagine."

I think, of course, O. C. W. did not intend to imply that movable comb hives are *necessarily* patent hives. Neither do I suppose that he intended, on the other hand, to admit that patent hives, as above set forth, are the cause of the common failures in bee-keeping. But should this should be true, the sooner patent hives are dispensed with the better. That the other causes enumerated are often the source of failures, secondarily, I am ready to admit. Yet I do not admit that the hive, be it a patent one or otherwise, is the sole or primary cause of failure. There must be other causes combined with the hive, to make it prove a failure in bee-keeping.

I think I am right in the opinion if we "introduce the BEE JOURNAL in every bee keepers' family," that it will ever show that the failures in bee-culture are mainly to be found in some other original sources, not enumerated in the above quotations. Why do the "cold winters" kill our bees? Is it because we do not sufficiently protect them from the cold?

Why do the "millers" destroy our bees? Is it because we do not keep the stock populous enough to cover and protect the comb from the depredations of moth?

Why does the "mould" prevent bees from doing well? Is it because we do not properly ventilate our hives, and thus let them become too damp?

Why do "robbers" interfere with our success in bee-keeping? Is it because we let our stocks become so weak that they cannot defend themselves, and because we do not protect them as much as we should in all cases?

From these questions I feel satisfied that the readers will conclude with me that the *common failures* are from causes *back* of the ones indicated in the quotations. Permit me to suggest that one of the chief sources of common failure is to be found in the *want of sufficient pasturage* from which bees can secure ample stores for the

support and rearing of populous stocks—stocks sufficiently populous to generate the amount of heat requisite to protect them from the cold, enable them to save their combs from destruction by the moth worm, and to defend themselves, by proper aid, from the assaults of robbers.

Will the *general experience* and enlightened knowledge of bee-keepers and the BEE JOURNAL, coincide in this, that to have a good stock of bees it must be populous, and have ample stores for its support, in all cases? Remove the latter, and the most prosperous stock will fail, and the secondary causes I have referred to will complete the destruction.

Now, by the above, do not understand me to say that there are no other primary or original causes of common failure in bee-keeping, than the want of sufficient pasturage for the bees. But I do say that this is *one of the chief sources* of failure and the want of profit in bee-culture.

The loss of a fertile queen, from any cause, would be another source of certain failure, in the most populous stocks of bees. The remedy here is not the bee-pasturage, but the introduction of another fertile queen, or young larvæ from which to rear one in the proper season.

The sooner, then, we introduce the proper means to make bee-keeping prosperous, the sooner it will become profitable; and those "enlightened men" become "systematic" bee-keepers, and chance *luck* be changed into something worthy of the "country's attention."

J. DAVIS.

CHARLESTON, ILLS.

[For the American Bee Journal.]

Bee Feeder.

A good bee-feeder can be made out of the usually castaway tin fruit and oyster cans. At the tinsmith's you can get the zinc shoulder and screw top, such as are used on kerosene oil cans. Those of one inch in diameter are the right size. Take the top and from the inside punch holes with the end of a file (small holes) being careful not to deform it. After punching eighteen or twenty holes evenly, turn and file the top smooth. The end or edge of the shoulder will fit most of the cans in the crease around the hole made for the cover. Fit and solder. Thus for one dime you will have as good a bee-feeder as any yet devised—one that you can feed on syrup with, thick or thin, or water your bees in the winter or spring.

Or you can have a neck fitted around the opening in the can, and by tying a piece of coarse muslin over the end of the neck, you will accomplish the same end.

To use, fill up full with honey, sugar syrup, or water, and place the neck in a hole over the cluster of bees.

BUFFALO GROVE, IOWA.

J. M. PRICE.

The smell of balm (*Melissa officinalis*) is very agreeable to bees, and it is well to have this fragrant plant growing in the neighborhood of the apiary.

[For the American Bee Journal.]

Reply from Novice.

DEAR BEE JOURNAL:—In reply to many inquiries, both through the JOURNAL and otherwise, in regard to removing the honey from the comb just as it is taken from the flowers, we would say that we think there can be no possible danger of the honey turning sour, as the very thinnest we had—which was from bass-wood, and in some cases, by way of experiment, removed on the same day it was gathered—is now so thick that a spoonful may be turned upside down without spilling.

It has seemed to be quite a general impression that our "machine honey" would be inferior on that account; but we are happy to state that such is not the case at all, and that the honey which seemed quite thin during the very hot weather when it was taken out, is now quite thick, although it was closely sealed on the same day; and some, which was purposely left open during the warmest weather, showed not the least sign of fermentation.

Our success in the bee business has made quite a sensation about here, especially as every one else has done so poorly, and the season is called almost a failure by old bee-keepers.

Now, all we ask is more seasons as good as that of 1868; and if we cannot do the same thing again, or better, (*two hundred and three pounds from one stock*), call us forever

MEDINA, OHIO.

NOVICE.

[For the American Bee Journal.]

Singular Disease of Bees.

MR. EDITOR:—I had in my yard, at the close of the past season, about thirty-five stands of bees—six of them Italians, one hybrid, and the remainder black.

Early in September I noticed an unusual number of dead bees at the entrances of some of my hives. I soon found that in several of them the bees were all gone, although the hives were well supplied with honey; and now, with the exception of the Italians and the one hybrid, there are but six stands left, and some of these are dying. The bees seem to drop to the bottom of the hive in a stupefied condition, and lie there partly alive for some time. All had plenty of honey; and it is evident that there is no poisonous property in the honey, as the Italians, which were supplied with the frames from the diseased hives, are apparently strong and healthy. There are no indications whatever of foulbrood. That disease has never appeared in this vicinity. I will send you a few of the dead bees, if desired. Can you explain the disease, and give me a remedy?

C. E. THORNE.

SELMA, OHIO, Nov. 9, 1868.

☞ We have no knowledge of any disease similar to that about described, and cannot suggest any remedy. Transferring the bees and combs to hives well washed with a solution of chloride of lime and thoroughly dried, might perhaps be useful. Please send us a few of the bees.